

71. Which of the following drugs is useful in a *Rh negative mother with a Rh positive infant* ?

- a. Rho gam
- b. Octeroide acetate
- c. Immunoglobulin
- d. Pneu-immune

71 (a) Rho gam is a useful drug for treatment of an Rh negative mothers with an Rh positive infant. In Rh negative mother, Rh positive antigens may transfer from Rh positive fetuses to the mother via placenta. This may lead to production of Rh positive antibodies in the mother's blood. These same antibodies may transfer back from the mother's blood into fetus via the placenta, and produce antigen-antibody reactions. This leads to lysis of red blood cells in the fetus, and miscarriage. Rho gam prevents the formation of anti-Rh antibodies in an mother who bears a Rh positive fetus.

83. Which of the following drugs is an H_2 receptor antagonist ?

- a. Hydroxyzine
- b. Cimetidine
- c. Diphenhydramine
- d. Omeprazole

83 (b) Tagamet (Cimetidine) is an H_2 receptor antagonist indicated for treatment of GERD and heartburn. It has a powerful cp450 inhibition property. The recommended dose of the drug is 400 mg b.i.d. Diarrhea, pancreatitis, and headache are reported side effects of the drug.

86. Sodium polystyrene sulfonate is found to lower :

- a. Serum K^+ concentration
- b. Serum Na^+ concentration
- c. Serum Al^{+3} concentration
- d. Serum Ca^{+2} concentration

86 (a) Sodium polystyrene sulfonate reduces the elevated serum concentration of potassium (hyperkalemia). It is an ion exchange resin that

replaces the potassium ions for sodium ions. The recommended dose of the drug is 15 grams, one to four times a day. Constipation, anorexia, and gastric irritation are reported side effects of the drug.

90. *Hypertrichosis* is generally associated with the use of

- a. Hydralazine
- b. Minoxidil
- c. Methyldopa
- d. Clonidine

90 (b) Hypertrichosis (increase in hair growth) is a side effect associated with the use of Loniten (Minoxidil). This adverse effect of Minoxidil has been used for treatment of male pattern baldness. Minoxidil is classified as an antihypertensive agent. It is indicated for the treatment of hypertension and male pattern baldness. The recommended dose of the drug is 5 mg per day. Hypotension, tachycardia, edema, nausea and vomiting are reported side effects of the drug.

94. Which of the following hypertensive drugs is known as an *inodilator* ?

- a. Nitroglycerin
- b. Milrinone
- c. Dipyridamole
- d. Digoxin

94 (b) Primacor (Milrinone) is known as an inodilator since it has inotropic as well as vasodilation properties. It is a selective inhibitor of cAMP phosphodiesterase enzymes in cardiac and vascular muscles. It is indicated for the treatment of CHF. The recommended dose of the drug is 50 mcg/kg administered slowly via I.V. infusion, over ten minutes. Arrhythmia, tachycardia, hypotension, and thrombocytopenia are reported side effects of the drug.

96. Which of the following blood cholesterol lowering drugs is an HMG-COA inhibitor ?

- a. Gemfibrozil
- b. Lovastatin
- c. Cholestyramine
- d. Niacin

96 (b) Mevacor (Lovastatin) is a lipid lowering drug that acts by inhibition of the HMG COA reductase enzymes. This enzyme is responsible for the conversion of 3-hydroxy 3 mehtylglutaryl-coenzyme A to mevalonate, the precursor for sterols including cholesterol. The inhibition of biosynthesis of cholesterol reduces the cholesterol in hepatic cells, which stimulates the synthesis of LDL receptors. These will all reduce the synthesis of cholesterol. It is indicated for the treatment of hypercholesterolemia. Abdominal cramps, pain, diarrhea, constipation, dyspepsia, myalgia, and arthralgia are reported side effects of the drug. The recommended dose of the drug is 20 mg once daily with an evening meal. The other agents in the same class are:

- * Fluvastatin
- * Atrovastatin
- * Pravastatin
- * Cerivastatin

102. Which of the following anti-Parkinson's drugs is a dopamine receptor agonist?

- a. Carbidopa
- b. Benztropine
- c. Bromocriptine
- d. Amantadine

102 (c) Parlodel (Bromocriptine) is classified as an antiparkinsons drug. It is indicated for the treatment of Parkinsonism. It is a dopamine receptor agonist. The recommended dose of the drug is 2.5 mg to 5 mg twice daily with meals. Pulmonary dysfunction is the principal side effect of the drug.

103. Which of the following diuretics acts through inhibition of carbonic anhydrase enzyme?

- a. Furosemide
- b. Acetazolamide
- c. Spironolactone
- d. Hydrochlorothiazide

103 (b) Diamox (Acetazolamide) acts through the inhibition of carbonic anhydrase enzymes. It is indicated for treatment of glaucoma, epilepsy and edema. The recommended dose of the drug is 250 mg to 1000 mg per day. Nausea, vomiting, seizure, bone marrow depression, electrolytes loss, hemolytic anemia, and toxic epidermal necrosis are reported side effects of the drug.

104. Which of the following is a common adverse effect of Metolazone?

- a. Seizure
- b. Electrolyte loss
- c. S.L.E.
- d. Neuroleptic malignant syndrome

104 (b) Zaroxolyn (Metolazone) is classified as a thiazide diuretic. It increases the excretion of Na, Cl, and H₂O. It is indicated for the treatment of edema associated with CHF, renal disease and nephrotic syndrome. The recommended dose of the drug is 5 to 20 mg once daily. Electrolyte loss is a common complication of Metolazone therapy.

108. Which of the following *sulfonylurea agents* is indicated for the treatment of diabetes insipidus ?

- a. Glyburide
- b. Chlorpropamide
- c. Glipizide
- d. Tolbutamide

108 (b) Diabinese (Chlorpropamide) is classified as a sulfonylurea agent. It is indicated for the treatment of diabetes and as a secondary therapy to treat partial central diabetes insipidus. It has been successfully used as an antidiuretic to reduce polyuria in patients with this disorder. Hypoglycemia, severe diarrhea, and water retention are reported side effects of the drug. The recommended dose of the drug is 200 mg to 500 mg per day for treatment of diabetes insipidus. Desmopressin is considered as primary therapy for treatment of diabetes insipidus.

110. Which of the following can be used for the treatment of Methotrexate overdose ?

- a. Mephyton
- b. Leucovorin Ca²⁺
- c. Pyridoxine
- d. Niacin

110 (b) Methotrexate overdose can be treated by administering Wellcovorin (Leucovorin Ca). It is a derivative of tetrahydrofolic acid. It is indicated to reduce the toxicity associated with overdose of folic acid antagonists, such as Methotrexate, Pyrimethamine, and Trimethoprim. Allergic reactions such as urticaria and anaphylaxis are reported side effects of the Leucovorin. It should be carefully used with 5 FU since the former enhances the toxicity of the later.

113. Which of the following drugs should not be used with Fluoxetine?

- a. Tranylcypromine
- b. Digoxin
- c. Amitriptyline
- d. Lidocaine

113 (a) Prozac (Fluoxetine) is classified as an SSRI. It has a prolonged half life. It takes 3 to 5 weeks to get the drug completely out of the body. It should be carefully prescribed with MAO inhibitors. Insomnia is the principal side effect of the drug. The recommended dose of the drug is 20 to 40 mg per day. The concurrent use of these two medications will result in severe hypertensive crisis. Tranylcypromine is an MAO-A inhibitor and should be avoided by patients taking Fluoxetine.

126. The principal adverse effect of *Clindamycin* is :

- a. ARF (acute renal failure)
- b. TEN (toxic epidermal necrosis)
- c. AAC (antibiotic associated colitis)
- d. ADR (adverse drug reaction)

126 (c) The principal adverse effect of Clindamycin is AAC (antibiotic associated colitis). It is classified in the macrolide group of antibiotics. Severe diarrhea is a reported side effect of the drug.

130. Pigmented retinopathy is highly associated with :

- a. Chlorpromazine
- b. Thioridazine
- c. Clozaril
- d. Haloperidol

130 (b) Mellaril (Thioridazine) is classified as an antipsychotic drug. It is indicated for the treatment of schizophrenia. Pigmented retinopathy is the most common side effect of the drug. The severity of this side effect is dose and therapy related. A dose of more than 800 mg is strictly prohibited by the FDA. NMS, tardive dyskinesia, and extrapyramidal symptoms are reported side effects of the drug.

Drugs that may cause ocular toxicity include:

- * Chloroquine
- * Hydroxychloroquine
- * Amiodarone
- * Chlorpromazine
- * Phenothiazine class of drugs
- * Corticosteroid, by increasing intraocular pressure of eyes

134. The parameter that is generally **NOT** included in evaluating the bioequivalency of two or more formulations of the same drug is

- a. Peak height concentration.
- b. Concentration at receptor site.
- c. Time to reach peak concentration.
- d. AUC.

134 (b) Concentration of a drug at a receptor site is not included in bioequivalency studies. Peak height concentration, the time required to reach peak concentration, and AUC are used to

evaluate the bioequivalency of two or more formulations of the same drug.

150. Which of the following drugs is indicated for treatment of *cystic fibrosis*?

- a. Dornase Alfa
- b. Calcitonin salmon
- c. Acetazolamide
- d. Methotrexate

150 (a) Pulmozyme (Dornase alfa) is indicated for the treatment of cystic fibrosis. It reduces the viscosity of sputum by helping in the breakdown of DNA nucleus of neutrophils (due to infection of the lung). Pharyngitis, apnea, voice alternation, and laryngitis are commonly reported side effects of the drug. The recommended dose of the drug is 2.5 mg via inhalation once daily.

163. Acarbose is contraindicated for patients suffering from :

- I. Inflammatory bowel disease
 - II. Patients with colonic ulceration
 - III. Patients with intestinal obstruction
- a. I only
 - b. I and II only
 - c. II and III only
 - d. I, II and III only

163 (d) Precose (Acarbose) is classified as an antidiabetic agent. It is indicated for the treatment of diabetes. It inhibits pancreatic alpha-amylase and alpha-glucosidase hydrolase enzymes. This may result in a smaller increase in blood glucose following meals. It is contraindicated to use in patients with inflammatory bowel disease, colonic ulceration, and intestinal obstruction. Abdominal pain, diarrhea, and flatulence are reported side effects of the drug. The recommended dose of the drug is 25 mg to 50 mg t.i.d. with the first bite of each main meal.

171. Which of the following drugs should patients with hypersensitivity to *Mesalamine* avoid?

- I. Sulfasalazine
- II. Olsalazine
- III. Mesalamine

- a. I only
- b. I and II only
- c. II and III only
- d. I, II and III only

171 (d) All. The active ingredient of all the mentioned choices is Mesalamine (5-aminosalicylic acid). It is indicated for the treatment of ulcerative colitis. It is chemically related to acetylsalicylic acid. It inhibits cyclooxygenase enzymes and prostaglandin synthesis, resulting in inflammation of the colitis. Anaphylaxis, diarrhea, abdominal cramps, G.I. ulcers and bleeding are reported side effects of the drug. The recommended dose of the drug is 1 gram q.i.d.

174. Which of the following thyroid drugs should in *pregnant women* avoid?

- a. Propylthiouracil
- b. Methimazole
- c. Propranolol
- d. Levothyroxine

174 (b) Tapazole (Methimazole) is classified as an antithyroid agent. It is indicated for the treatment of hyperthyroidism. The recommended dose of the drug is 15 mg to 40 mg per day. It should be avoided by pregnant women because of the serious side effect of agranulocytosis.

176. Which of the following drugs is indicated in *smoking cessation* programs?

- a. Bupropion
- b. Tramadol
- c. Tamsulosin
- d. Risperidone

176 (a) Wellbutrin (Bupropion) is classified as an antidepressant agent. It is indicated for depression and smoking cessation therapy. It reduces the urge to smoke. Seizure is the principal side effect of the drug. The recommended dose of the drug is 100 mg t.i.d.

213. Which of the following drugs should be classified as a *ca-channel blocker* ?

- a. Amlodipine
- b. Acyclovir
- c. Losartan
- d. Epoprostenol

213 (a) Norvasc (Amlodipine) is classified as a *ca-channel blocker*. It is indicated for the treatment of hypertension. The recommended dose of the drug is 10 to 20 mg b.i.d. Hypotension, tachycardia, nausea, and vomiting are reported side effects of the drug.

257. Which of the following drugs is indicated for the treatment of *P.carinii.Pneumonia* ?

- a. Pentamidine
- b. Erythromycin
- c. Phenobarbital
- d. Gabapentin

257 (a) Pentam (Pentamidine) is classified as an antiprotozoal agent. It is indicated for the treatment of pneumonia caused by *P.Carinii.Pneumonia*. The recommended dose of the drug is 4 mg/kg/day for 14 days, via I.V. or deep I.M. Hypotension, tachycardia, nausea, phlebitis, and bronchospasm are reported side effects of the drug.

258. The principal adverse effect of *Clozaril* is :

- a. Hypotension
- b. Hypertrichosis
- c. Agranulocytosis
- d. Renal failure

258 (c) Clozapine (Clozaril) is classified as an antipsychotic agent. It is indicated for the treatment of schizophrenia. The recommended dose of the drug is 300 mg to 600 mg per day, in two to three divided doses. Agranulocytosis, seizure, cardiac abnormalities, and hyperpyrexia are reported side effects of the drug.

263. Which of the following drugs is classified as a *Loop diuretic* ?

- a. Furosemide
- b. Spironolactone
- c. Acetazolamide
- d. Mannitol

263 (a) Lasix (Furosemide) is classified as a loop diuretic. It acts on loop of Henle. It is indicated for the treatment of edema associated with CHF and hypertension. The recommended dose of the drug is 20 to 40 mg per day. Electrolyte loss, hypokalemia, hypotension, and nausea are reported side effects of the drug.

264. Which of the following antihypertensive agents acts by stimulation of *alpha-2 receptors*?

- a. Hydralazine
- b. Methyldopa
- c. Captopril
- d. Propranolol

264 (b) Aldomet (Methyldopa) is classified as an antihypertensive agent. It is an *alpha-2* receptor agonist. The stimulation of this receptor may prevent the release of adrenaline. It is indicated for the treatment of hypertension. Hemolytic anemia, toxic epidermal necrosis, bone marrow depression, sedation, and depression are reported side effects of the drug. The recommended dose of the drug is 250 mg b.i.d or t.i.d.

274. Which of the following is a *muscarinic receptor antagonist* ?

- a. Albuterol
- b. Ipratropium
- c. Theophylline
- d. Triamcinolone

274 (b) Atrovent (Ipratropium) is an atropine-like drug indicated for treatment of asthma. It is a muscarinic receptor antagonist. Inhibition of this receptor will lead to dilation of bronchial smooth muscles. Dryness of mouth, urinary retention, constipation, and blurred vision are reported side

effects of the drug. The recommended dose of the drug is 2 puffs b.i.d.

281. Which of the following drugs is an inhibitor of HMG-COA ?

- a. Gemfibrozil
- b. Simvastatin
- c. Theophylline
- d. Niacin

281 (b) Zocor (Simvastatin) is classified as an HMG-CoA reductase inhibitor. It is indicated for the treatment of elevated cholesterol levels in patients with a high risk of atherosclerosis. Rhabdomyolysis with renal functions dysfunction, arthralgia, diarrhea, nausea, and vomiting are reported side effects of the drug. The recommended dose of the drug is 5 to 10 mg once daily in the evening.

356. The first dose syncope is normally reported with:

- a. Prazosin
- b. Hydralazine
- c. Minoxidil
- d. Captopril

356 (a) Minipress (Prazosin) is classified as a vasodilator. It is an alpha-1 receptor blocker. It is indicated for the treatment of essential hypertension. The recommended dose of the drug is 1 to 2 mg by mouth at bed time. Severe hypotension including first dose syncope, tachycardia, and edema are reported side effects of the drug.

358. Which of the following produces its pharmacological actions by inhibiting *HMG- COA reductase* enzymes?

- a. Gemfibrozil
- b. Cerivastatin
- c. Cholestyramine
- d. Niacin

358 (b) Baycol (Cerivastatin) is an antihyperlipidemic drug indicated for prevention of

atherosclerosis in patients with elevated lipid levels. It produces its pharmacological action by inhibiting HMG-COA reductase enzymes. HMG-COA reductase is a major rate limiting enzyme in the synthesis of cholesterol. HMG-COA reductase catalyzes the conversion of HMG-COA to mevalonic acid, which is an early step in the synthesis of cholesterol. Rhabdomyolysis with acute renal failure, leg pain, back pain, myoglobinemia, and edema are reported side effects of the drug. The recommended dose of the drug is 0.4 mg once daily in the evening.

378. Which of the following is an *estrogen receptor* antagonist ?

- a. Prednisone
- b. Tamoxifen
- c. Medroxyprogesterone
- d. Ethinyl estradiol

378 (b) Nolvadex (Tamoxifen) is an estrogen receptor antagonist indicated for treatment of breast cancer. Pulmonary embolism, thromboembolic order, hepatic necrosis, nausea, vomiting, and diarrhea are reported side effects of the drug. The recommended dose of the drug is 10 to 20 mg b.i.d.

496. Which of the following diuretics has an aldosterone antagonist property?

- a. Hydrochlorothiazide
- b. Spironolactone
- c. Furosemide
- d. Bumetanide

496 (b) Aldactone (Spironolactone) is an aldosterone antagonist. It is classified as a potassium sparing diuretic. It is indicated for the treatment of edema associated with CHF, cirrhosis of the liver, and nephrotic syndrome. It is also indicated for the treatment of essential hypertension and primary hyperaldosteronism. Hyperkalemia, diarrhea, cramps, gynecomastia, and lethargy are reported side effects of the drug.

497. Which of the following antacids absorbs into systematic circulation and can produce systemic alkalosis?

- a. Aluminum hydroxide
- b. Sodium bicarbonate
- c. Calcium carbonate
- d. Magnesium oxide

497 (b) Sodium bicarbonate can be absorbed into systematic circulation and may produce alkalosis. It is classified as an antacid and alkalizing agent. It is indicated for the treatment of hyperacidity, severe diarrhea, and alkalization of urine to treat drug toxicities. The antacid action is due to neutralization of hydrochloric acid by the formation of sodium chloride and carbon dioxide. Seizure, metabolic alkalosis, milk alkali syndrome, and acid rebound with gastric distention are reported side effects of the drug.

504. Overdose of heparin can be prevented by administration of :

- a. Vitamin K₁
- b. Protamine sulfate
- c. EDTA
- d. Phenobarbital

504 (b) Protamine sulfate is a heparin antagonist. It is a strongly basic polypeptide that complexes with strongly acidic heparin to form an inactive stable salt. It is indicated for the treatment of heparin overdose. Acute pulmonary hypertension, and circulatory complex with myocardial failure are reported side effects of the drug. One milligram of protamine sulfate can neutralize about 90 usp units of heparin derived from lung tissue, or about 115 usp units of heparin derived from intestinal mucosa.

509. The bacteriostatic action of Cotrimoxazole is attributed to inhibition of :

- I. Dihydrofolate reductase
- II. Dihydropteroate synthetase
- III. DNA gyrase

- a. I only
- b. I and II only
- c. II and III only
- d. I, II and III only

509 (b) The bacteriostatic action of Cotrimoxazole (Sulfamethoxazole + Trimethoprim) is due to its ability to inhibit dihydropteroate synthetase and dihydrofolate reductase. It is indicated for the treatment of UTI and P.carinii.Pneumonia. The recommended dose of the drug is one tablet by mouth twice daily. Allergic reactions, Stevens-Johnson syndrome, hemolytic anemia, and stomatitis are reported side effects of the drug.

510. Which of the following compounds generated by Methenamine acts as a urinary antiseptic?

- a. Hydrogen Peroxide
- b. Formaldehyde
- c. Benzaldehyde
- d. Alcohol

510 (b) Methenamine is a urinary antiseptic. It decomposes in water and generates the formaldehyde. Formaldehyde is a bactericidal agent that kills bacteria. It is indicated for the treatment of UTI. The recommended dose of the drug is 1 gm b.i.d. to q.i.d after meals and at bed time. Nausea, vomiting, diarrhea, stomatitis, and urticaria are reported side effects of the drug.

511. Which of the following chemotherapy agents produces its antibacterial action by inhibiting bacterial DNA synthesis by blocking DNA gyrase?

- a. Erythromycin
- b. Tetracycline
- c. Ciprofloxacin
- d. Chloramphenicol

511 (c) Ciprofloxacin inhibits bacterial DNA synthesis by blocking DNA gyrase. It is classified in the quinolone group of antibiotic. CNS stimulation and seizure are principal side effects of the drug. It should be carefully prescribed with antacids, tetracycline and iron supplements due to

its property to form chelate with cations. The recommended dose of the drug is 500 mg to 750 mg b.i.d for 14 to 21 days.

512. Which of the following antibacterial agents is indicated for the treatment of Methicillin resistant infections ?

- a. Tetracycline
- b. Vancomycin
- c. Metronidazole
- d. Norfloxacin

512 (b) Vancocin (Vancomycin) is indicated for the treatment of Methicillin resistant infections and antibiotic-induced pseudomembranous colitis. Ototoxicity, nephrotoxicity, "Red-neck syndrome", hypotension, wheezing, and urticaria are reported side effects of the drug.

522. Which of the following antibiotics inhibit the synthesis of folic acid from PABA?

- a. Rifampicin
- b. Clofazimine
- c. Dapsone
- d. Isoniazid

522 (c) Dapsone is structurally related to sulpha drugs that inhibit the synthesis of folic acid from PABA by inhibiting dihydropteroate synthetase. It is indicated for the treatment of tuberculosis. In combination with Rifampin, it is indicated for the treatment of leprosy whereas in combination with Trimethoprim, it is indicated for the treatment of P.carinii.Pneumonia. Hemolytic anemia, methemoglobinemia, nervousness, tachycardia, and pruritus are reported side effects of the drug.

529. Inflammation of the lips is a frequently reported side effect of

- a. Bleomycin
- b. Isotretinoin
- c. Clindamycin
- d. Hydroxyurea

529 (b) Inflammation of the lips (Cheilitis) is a commonly reported side effect of Accutane (Isotretinoin). It is indicated for the treatment of acne. It is a vitamin A derivative. It is classified in pregnancy category X and should be strictly avoided by pregnant women. Conjunctivitis, optical neuritis, dry mouth, depression, hepatotoxicity, and an increase in blood glucose and triglycerides are principal side effects of the drug. The recommended dose of the drug is 0.5 to 2 mg/kg in two divided doses for 15 to 20 weeks.

565. Which of the following drugs can be used as an adjunctive therapy with Coumadin in a patient with cardiac valve replacement?

- a. Lidocaine
- b. Dipyridamole
- c. Phenytoin
- d. Diazepam

565 (b) Persantine (Dipyridamole) is classified as a platelets aggregation inhibitor. It is indicated as an adjunct therapy with Coumadin (Warfarin) for patients with cardiac valve replacements, and with aspirin to reduce the risk of stroke. It inhibits the uptake of adenosine by erythrocytes and tissues. This will increase the concentration of adenosine-induced effects such as coronary dilation, relaxation of smooth muscles, and inhibition of platelets aggregation. Hypotension, nausea, dyspepsia, and bleeding are reported side effects of the drug. The recommended dose of the drug is 150 to 400 mg per day.

580. Which of the following diuretics acts by inhibition of $\text{Na}^+\text{K}^+\text{ATP}$ -ase activity?

- a. Triamterene
- b. Spironolactone
- c. Amiloride
- d. Furosemide

580 (c) Midamor (Amiloride) is a potassium sparing diuretic that acts by inhibition of $\text{Na}^+\text{K}^+\text{ATP}$ ase activity. It is indicated for the treatment of edema associated with CHF, hepatic cirrhosis,

and nephrotic syndrome. Hyperkalemia, lethargy, weakness, electrolyte loss, and hypotension are reported side effects of the drug. The recommended dose of the drug is 5 to 10 mg per day.

583. Lanoxin (digoxin) can be indicated for the treatment of all of the following **EXCEPT**

- a. Atrial flutter
- b. Atrial fibrillation
- c. Ventricular fibrillation
- d. CHF

583 (c) Lanoxin (Digoxin) is classified as an inotropic agent, an agent that increases the force of contraction of the heart. It is indicated for the treatment of atrial flutter, atrial fibrillation, and CHF. It should not be used for treatment of ventricular fibrillation since it may induce automaticity to ventricles, which may worsen the ventricular fibrillation. The recommended dose of the drug is 0.125 mg to 0.25 mg per day. The normal therapeutic serum concentration of the drug is 0.7 to 1.4 ng/ml. Anorexia, hypotension, edema, ventricular fibrillation, and convulsion are reported side effects of the drug. The drug should be carefully prescribed with other agents which may induce hypokalemia.

592. The use of Procainamide is contraindicated in patients with:

- a. Arrhythmia
- b. Myasthenia gravis
- c. Ulcerative colitis
- d. Zollinger-elision syndrome

592 (b) The use of (Procan) Procainamide is highly contraindicated for patients with Myasthenia gravis. Its anticholinergic type of action decreases the acetylcholine released at the skeletal muscle motor nerve ending and may worsen the disease. It is classified as a class IA antiarrhythmic agent. It is indicated for the treatment of ventricular arrhythmia. Lupus erythematosus-like syndrome, agranulocytosis, hemolytic anemia, and heart block are reported side effects of the drug.

594. Patients with congestive heart failure have to avoid which of the following?

- a. Procainamide
- b. Phenytoin
- c. Disopyramide
- d. Lidocaine

594 (c) Norpace (Disopyramide) is classified as a class IA antiarrhythmic agent. It is indicated for the treatment of life-threatening ventricular arrhythmia. It has a powerful negative inotropic (reduction in the force of contraction of heart) effect that is highly contraindicated for patients with CHF. Severe myocardial depression with hypotension, anticholinergic side effects such as dry mouth, urinary retention, constipation, and blurred vision, and symptoms of lupus erythematosus are reported side effects of the drug.

603. Which of the following drugs is indicated as an appetite stimulant agent?

- a. Epotein
- b. Megestrol acetate
- c. Pyridoxine
- d. Ensure

603 (b) Megace (Megestrol) is classified as a synthetic progestin. It is indicated for the treatment of advanced endometrial or breast cancer. It is also used as an appetite stimulant agent in AIDS patients. The recommended dose of drug for appetite stimulation is 400 mg twice a day. Cardiomyopathy, hypertension, and seizure are reported side effects of the drug.

607. Oxytocin generally causes:

- a. Dilation of uterine muscles.
- b. Dilation of coronary arteries.
- c. Contraction of uterine muscles.
- d. Contraction of prostate gland.

607 (c) Oxytocin is classified as an oxytocic agent. It is the hormone secreted from the posterior pituitary. It induces or stimulates labor at term. It is

also indicated for the treatment of uterine inertia. Anaphylaxis, hyperstimulation of uterus, and hypertensive episodes are reported side effects of the hormone.

609. Which of the following Insulins has a rapid onset of action and the shortest duration of action?

- Regular insulin
- Prompt insulin Zn
- Insulin Lispro
- Insulin Zn suspension

609 (c) (Humalog) Insulin Lispro is an rDNA origin derived from E.coli. It is a human insulin analog. It has a rapid onset of action and the shortest duration of action. It is indicated for the treatment of diabetes. Hypoglycemia, tachycardia, confusion, and lipoatrophy are reported side effects of the drug.

610. Which of the following Sulfonyl urea agents should be avoided by geriatric patients ?

- Tolbutamide
- Chlorpropamide
- Glyburide
- Glipizide

610 (b) Diabinese (Chlorpropamide) is classified as an oral sulfonyl urea agent. It should be carefully prescribed to geriatric patients because of its prolonged elimination half-life. The half-life of the drug in normal patients is 24 to 60 hours. It is indicated for the treatment of type II diabetes mellitus. The recommended dose of the drug is 100 mg to 250 mg in single or divided doses. Hypoglycemia, tachycardia, diarrhea, and water retention are reported side effects of the drug.

614. Which of the following antihyperthyroid agents can be safely administered to pregnant women ?

- Methimazole
- Propylthiouracil
- Potassium iodide
- Levothyroxine

614 (b) Propylthiouracil (PTU) is classified as an antithyroid agent. It inhibits the thyroid production by preventing the incorporation of iodide into tyrosine and coupling of iodotyrosines. It is indicated for the treatment of hyperthyroidism. It can be safely administered to pregnant women due to low fetal side effects. Agranulocytosis, hemolytic anemia, skin rash, urticaria, hepatitis, and nephritis are reported side effects of the drug. The recommended dose of the drug is 300 mg to 900 mg per day in divided doses.

623. Which of the following drugs antagonizes the toxic effect of benzodiazepine overdose ?

- Deferoxamine
- Fluoxetine
- Flumazenil
- Chlorpromazine

623 (c) Romazicon (Flumazenil) is classified as a benzodiazepine receptor antagonist. It is indicated for the treatment of benzodiazepine overdose. It reverses the sedation produced by benzodiazepines. Seizures and arrhythmia are reported side effects of the drug.

660. Calculate the $[H_3O^+]$ concentration of a 0.09 M solution of ammonium chloride. Assume that K_b for ammonia is 1×10^{-4} and K_w is 1×10^{-14}

- 1×10^{-2}
- 2.4×10^{-5}
- 3×10^{-6}
- 9×10^{-10}

660. (c)

$$\begin{aligned} K_a &= K_w / K_b \\ &= 1 \times 10^{-14} / 1 \times 10^{-4} \\ &= 1 \times 10^{-10} \end{aligned}$$

$$\begin{aligned} [H_3O^+] &= \sqrt{K_a \times C_a} \\ &= \sqrt{1 \times 10^{-10} \times 9 \times 10^{-2}} \\ &= 3 \times 10^{-6} \end{aligned}$$

683. Amlodipine is classified as:

- a. Beta blocker
- b. ACE inhibitor
- c. Ca-channel blocker
- d. Vasodilator

683. (c) Norvasc (Amlodipine) is classified as a calcium channel blocker. It is indicated for the treatment of essential hypertension and chronic or vasospastic angina. The recommended dose of the drug is 5 mg to 10 mg per day. Hypotension, tachycardia, edema, and lightheadness are reported side effects of the drug.

684. An amine base that is not metabolized and has a PKa of 8 will be reabsorbed from the renal tubules most quickly if the pH of the urine is adjusted to:

- a. 5
- b. 6
- c. 3
- d. 10

684. (d) To solve this problem, we need to find at which pH the drug produced maximum unionized species.

$$PK_w = PK_a + PK_b$$

$$\begin{aligned} \text{pH} &= PK_w - PK_b + \log \text{base/salt} \\ &= PK_a + \log \text{base/salt} \\ &= 8 + \log \text{base/salt} \\ &= 8 + \log \text{base/salt} \end{aligned}$$

If the pH = 10, we will get a maximum unionized species of the drug.

$$\begin{aligned} 10 &= 8 + \log \text{base/salt} \\ 2 &= \log \text{base/salt} \\ \text{base} &= 100 \times \text{salt} \end{aligned}$$

This indicates that unionized species of the drug (base) is 100 times ionized species of the drug (salt).

685. Ten hours after 750 mg of a drug is administered by IV injection, a patient's plasma concentration is 20 mcg/ml. If the half-life of this drug is 5 hours and the minimal effective concentration (MEC) is 3 mcg/ml, how many hours after the first dose should a second dose be administered?

- a. 10 hours
- b. 22 hours
- c. 37.5 hours
- d. 15 hours

685. (b) Ten hours after 750 mg of a drug with a half-life of 5 hours and a required (Minimum Effective Concentration) MEC of 3 mcg/ml is administered, we can say:

HOURS	MEC
10 (after)	0 mcg/ml
0	20 mcg/ml
5	10 mcg/ml (half life = 5 hours)
5	5 mcg/ml (half life = 5 hours)
5	2.5 mcg/ml (half life = 5 hours)

25 HOURS **2.5 mcg concentration**
MEC is 3 mcg/ml, so the next dose should be administered approximately between 20 to 25 hours.

691. Which of the following NSAIDS is indicated for the treatment of ductus arteriosus in premature infants?

- a. Ibuprofen
- b. Indomethacin
- c. Rofecoxib
- d. Nabumetone

691. (b) Indocin (Indomethacin) is classified as an NSAID. It is indicated for the treatment of ductus arteriosus in premature infants. It inhibits the

synthesis of prostaglandins. It is also indicated for the treatment of pain associated with rheumatoid arthritis, spondylitis, acute gouty arthritis, and tenosynovitis. The recommended dose of the drug is 75 mg to 150 mg per day in divided doses. G.I. ulcers, bleeding, nausea, and vomiting are reported side effects of the drug.

696. Which of the following has the longest half-life?

- a. Ciprofloxacin
- b. Clofazimine
- c. Sulfadiazine
- d. Dicloxacillin

696. (b) Lamprore (Clofazimine) is classified as a leprostatic agent. It is indicated for the treatment of leprosy. It has the longest half-life of about 70 days. Pink to brownish pigment of the skin, diarrhea, G.I. bleeding, and pigmentation of conjunctiva and cornea are reported side effects of the drug. The recommended dose of the drug is 100 mg per day.

706. Ketorolac Tromethamine can be given

- I. Orally
 - II. I.M.
 - III. I.V.
-
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

706. (d) Toradol (Ketorolac) is classified as an NSAID. It is indicated for short-term management of pain. It is normally given by oral, I.V. or I.M. route. The maximum recommended daily dose of Toradol (Ketorolac) for oral administration is 40 mg/day, and for IV/IM administration it is 120 mg/day. It should not be used more than five days. G.I. ulcers, bleeding, and hepatic and renal function impairment are reported adverse effects of the drug.

736. Which of the following is NOT TRUE about Vibramycin?

- I. It is indicated for the treatment of SIADH.
 - II. It can be safely used in renally impaired patients.
 - III. It may be taken with food or milk to reduce G.I. irritation.
-
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

736. (a) Vibramycin (Doxycycline) can be more safely used in patients with impaired renal function compared to other derivatives of Tetracycline. It can be taken with food, antacids, and milk and dairy products. It is indicated for the treatment of uncomplicated gonococcal infections and syphilis. It is also used as a prophylaxis in malaria and traveler's diarrhea. The recommended dose of the drug is 100 mg b.i.d for 10 to 14 days.

It is not indicated for treatment of systematic antidiuretic hormone deficiency. Demeclocycline is indicated for treatment of SAIDH (Systematic Antidiuretic Hormone Deficiency).

746. Mesalamine generally acts by

- a. Binding to 30S ribosomes.
- b. Binding to 50S ribosomes.
- c. Local bactericidal effects on colon bacteria.
- d. Inhibiting prostaglandin synthesis.

746. (d) Pentasa (Mesalamine) is a 5-acetylsalicylic acid derivative. It is indicated for the treatment of ulcerative colitis. It is chemically related to acetylsalicylic acid. It inhibits cyclo-oxygenase enzymes and prostaglandin synthesis, resulting in inflammation of colitis. Anaphylaxis, diarrhea, ab-

dominal cramps, and G.I. ulcers and bleeding are reported side effects of the drug. The recommended dose of the drug is 1 gram q.i.d. It produces its anti-inflammatory action by inhibiting synthesis of prostaglandins.

758. Caspofungin is indicated to treat infections caused by

- a. Herpes virus
- b. S.pneumonia
- c. A. fungi
- d. V. cholera

758. (c) Cancidas (Caspofungin) is classified as an antifungal agent. It inhibits the synthesis of D-glucan, an essential component of the cell wall of susceptible fungi. It is indicated for the treatment of infections caused by Aspergillus fungi. The recommended therapeutic dose of the drug is a single 70 mg loading dose administered on day 1, followed by 50 mg once daily thereafter. Fever, chills, flu-like symptoms, rash, and pruritus are reported side effects of the drug.

772. Before initiating therapy with Paclitaxel, it is recommended that the patient be pretreated with

- I. Corticosteroid
 - II. Diphenhydramine
 - III. H₂ Antagonist
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

772. (d) Before initiating therapy with Taxol (Paclitaxel), the patient needs to be pretreated with corticosteroid, diphenhydramine, or H₂ receptor antagonists to prevent the hypersensitivity reactions that are generally associated with the use of Taxol.

Paclitaxel is classified as an antineoplastic agent. It is indicated for the treatment of breast cancer, metastatic carcinoma of the ovary, and kaposi's sarcoma. Complete AV block, syncope, angioedema, and dyspnea are reported side effects of the drug.

774. Sumatriptan is mainly indicated for the treatment of

- a. Cancer therapy induced nausea and vomiting
- b. Migraine
- c. Depression
- d. Seizure

774. (b) Imitrex (Sumatriptan) is indicated for treatment of migraines. It is an agonist of a vascular 5-HT receptor.

It is available in tablet and injection form. Tablets are available in 25 mg and 50 mg of oral strength. Injections are available in 0.5ml/6mg of strength in prefilled syringes and vials.

At the onset of attack, patients may take 25 to 100 mg by mouth and then may repeat every 2 hours if needed. (**not to exceed a daily dose of more than 300 mg **). Alternatively, patients can take 6mg S.C. The maximum recommended dose is 12mg/day with an interval of 1 hour between two injections.

Serious life threatening arrhythmia, myocardial infarction, and heart failure are reported side effects of the drug. It should be carefully prescribed in patients with a history of ischemic heart disease, myocardial infarction, hypertension, and angina.

805. Which of the following Ca-channel blockers is useful in the treatment of cerebral spasm?

- a. Amlodipine
- b. Nifedipine
- c. Nimodipine
- d. Isradipine

805. (c) Nimodipine (Nimotop) is classified as a calcium channel blocker. It is indicated for the treatment of cerebral spasm following subarachnoid hemorrhage. It has a high lipid solubility which facilitates drug entry in the brain. Hypotension, tachycardia, peripheral edema and G.I. hemorrhage are reported side effects of the drug. The recommended dose of the drug is 60 mg every 4 hours,

beginning within 96 hours after subarachnoid hemorrhage, for 21 consecutive days.

864. Which of the following drug(s) is/are carefully prescribed with Selegiline?

- I. Meperidine
 - II. Fluoxetine
 - III. Tyramine
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

864. (d) Severe hypertensive crisis is observed when Meperidine, Fluoxetine or Tyramine is concurrently prescribed with Selegiline. Concurrent use is strictly prohibited. Eldepryl (Selegiline) is classified as an MAO B inhibitor. It is indicated for the treatment of Parkinson's. It inhibits the metabolism of dopamine and increases its concentration at dopamine receptor sites. The recommended dose of the drug is 10 mg per day in two divided doses. Insomnia, tachycardia, CNS stimulation, dizziness, fainting, nausea, and vomiting are reported side effects of the drug.

879. Ritonavir oral solution should be avoided with:

- a. Metronidazole
- b. Diphenhydramine
- c. Amitriptyline
- d. Alprazolam

879. (a) Norvir (Ritonavir) oral solution contains 49% alcohol. It should be carefully prescribed with drugs producing disulfiram-like reactions such as Metronidazole, Chlorpropamide, Cefoperazone, Cefamandole, Cefotetan, and Disulfiram. Ritonavir is classified as an antiviral drug. It is a protease inhibitor. It is indicated for the treatment of HIV infections. Nausea, vomiting, diarrhea, anorexia, flatulence, and asthenia are reported side effects of the drug. The recommended dose of the drug is 600 mg b.i.d.

926. The nasal decongestant in Allegra-D (Fexofenadine) is

- a. Epinephrine
- b. Phenylephrine
- c. Pseudoephedrine
- d. Oxymetazoline

926. (c) The nasal decongestant in Allegra-D (Fexofenadine) is Pseudoephedrine. Fexofenadine is an active metabolite of Terfenadine. It is classified as a Histamine H₁ receptor antagonist. It is indicated for the treatment of seasonal allergic rhinitis. Drowsiness, dizziness, pharyngitis, and fatigue are reported side effects of the drug. The recommended dose of the drug is 60 mg b.i.d or 180 mg once daily.

932. Clomid (Clomiphene) is indicated for the treatment of

- a. Ovulatory dysfunction
- b. Hypertension
- c. Atherosclerosis
- d. Rheumatoid arthritis

932. (a) Clomid (Clomiphene) is indicated for the treatment of ovulatory dysfunction in women during pregnancy. It is classified as an ovarian stimulant agent. It combines with estrogen receptors. Through negative feedback mechanism, the hypothalamus and pituitary are stimulated to increase secretion of FSH and LH. Under the influence of increased levels of these hormones, an ovarian follicle develops, followed by ovulation and corpus luteum development. Blurred vision, spots or flashes, posterior capsular cataract, spasm of retinal arteriole, and uterine bleeding are reported side effects of the drug. The recommended dose of the drug is 50 mg per day for five days.

120. A 500 mg dose of a drug administered via I.V. injection produces a plasma concentration of 2.5 mcg/ml after 16 hours. If the initial plasma concentration of the drug is 10 mcg/ml, bioavailability is 1, and volume of distribution is 120,000 L, what is the half-life of the drug?

- a. 2 hours
- b. 8 hours
- c. 5 hours
- d. 15 hours

120. (b) The initial plasma concentration of the drug is 10 mcg/ml, therefore:

<u>Mcg/ml</u>	<u>Hours</u>
10 mcg/ml	0
5 mcg/ml	8 hours
2.5 mcg/ml	8 hours
Total = 16 hours	

The half-life of the drug should be 8 hours.

140. How many tablets (approximately) of 0.125 mg Lanoxin is required if the measured plasma concentration of drug is 1 mcg/ml and the desired plasma concentration of drug is 1.5 mcg/ml. The apparent volume of digoxin is 10 L/Kg for a 70 kg patient. (Assume S and F = 1)

- a. One
- b. Four
- c. Three
- d. Two

140. (c)

$$LD = \frac{Vd \times (Cp \text{ desired} - Cp \text{ observed})}{F \times S}$$

$$= 10 \times 70 \times (1.5 - 1.0)$$

$$= 350 \text{ mcg}$$

* Therefore approximately three tablets of 0.125 mg is required to produce a loading dose.

358. Which of the following salts produces an acidic solution?

- a. Salt of weak acid with strong base
- b. Salt of strong acid with strong base
- c. Salt of weak acid with weak base
- d. Salt of strong acid with weak base

358. (d) The salt of strong acid with weak base may produce an acidic solution when dissolved in water.

564. The principal energy-carrying molecule in a cells is:

- a. AMP
- b. ADP
- c. ATP
- d. NADP

564. (c) The principal energy-carrying molecule in cells is Adenosine Triphosphate (ATP). It consists of an adenosine unit of adenine and ribose joined to three phosphate groups. It releases energy when converted to Adenosine Diphosphate. ATP is generated by energy-yielding reactions in cells such as decomposition of glucose. The breakdown of an ATP molecules is accomplished by an enzyme known as Adenosine Triphosphatase.

707. Which of the following is commonly used as a household oxidizing agent?

- a. Formaldehyde
- b. Benzalkonium chloride
- c. Hydrogen peroxide
- d. Ethylene oxide

707. (c) Hydrogen peroxide is a common household oxidizing agent. It is not a good antiseptic for open wounds, but it is very useful in deep anaerobic wounds where the oxygen released by tissue-enzymes is highly effective against anaerobes such as clostridium.

714. Microorganisms that establish permanent residence without producing disease are known as:

- a. Normal flora
- b. Transient flora
- c. Opportunistic pathogen
- d. Microbial antagonism

714. (a) Microorganisms that establish permanent residence without producing disease are known as normal flora.

Microorganisms that may present for a time and then disappear are called transient flora.

Normal flora that can benefit the host by preventing the overgrowth of harmful microorganisms is called Microbial antagonism.

Under certain conditions, when normal flora can produce harm to or disease in host cells, it is known as Opportunistic pathogens.

717. Otitis externa is generally caused by:

- a. S.aureus
- b. S.epidermis
- c. Paeruginosa
- d. S.pyrogen

717. (c) Otitis externa is generally caused by P.aeruginosa. Pseudomonas, particularly P.aeruginosa, may cause opportunistic skin infections. They are normally present in soil, water, and plants. Otitis externa or swimmer's ear is a pseudomonad infection of the outer ear. Gentamicin and carbenicillin are effective antibacterial agents.

720. Cold sores or fever blisters are normally caused by:

- a. HSV-1
- b. HSV-2
- c. Varicella zoster
- d. Variola minor

720. (a) Cold sores or fever blister is normally caused by HSV-1 (herpes Simplex Virus type-1).

722. Trachoma is normally caused by:

- a. Tinea capitis
- b. Sporotrichosis
- c. Corynebacterium diptheria
- d. Chlamydia trachomatis

722. (d) Trachoma is normally caused by Chlamydia trachomatis. It is the leading cause of

blindness in the world. It is an infection of the epithelial cells of the eyes. Scar tissues form on the cornea. Tetracycline is indicated for the treatment.

728. Which of the following informations is/are true about Infectious Mononucleosis?

- I. It is caused by Epstein Barr virus.
 - II. It is characterized by enlarged and tender lymph nodes, an enlarged spleen, fever, sore throat and headache.
 - III. It is commonly spread by sneezing.
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

728. (b) Infectious mononucleosis is caused by Epstein Barr virus. It is characterized by enlarged and tender lymph nodes, enlarged spleens, fever, sore throat and headache. It is most commonly spread by an infected patient's saliva. As a result of infection, white blood cells proliferate in the same manner as in leukemia. Chronic Fatigue Syndrome is also reported with Epstein Barr virus.

733. Burkitt's lymphoma is caused by:

- a. S.aureus
- b. T.pallidum
- c. Epstein Barr virus
- d. Toxoplasma gondii

733. (c) Burkitt's lymphoma is caused by Epstein Barr virus.

738. Which of the following is known as the pacemaker of the heart?

- a. SA node
- b. AV node
- c. Purkinje fibers
- d. Tricuspid valve

738. (a) Sinoatrial node (SA node) is known as the pacemaker of the heart. It generates nerve impulses that spread to the atrioventricular node (AV node), where the impulses are amplified and spread to other regions of the heart by nerves called Purkinje fibers.

847. In movable joints, which of the following serves as a lubrication?

- a. Tendons
- b. Ligaments
- c. Synovial fluid
- d. Microfilaments

847. (c) In movable joints, synovial fluid helps as a lubricating agent. Ligaments are defined as tough fibrous tissues that link the bones. Muscles are attached to bones by connective tissues called tendons.

855. Which of the following is less likely to reabsorb from renal tubules?

- a. Glucose
- b. Water
- c. Vitamin A
- d. Sodium ions

855. (d) The ionized species of molecules are less likely to reabsorb from renal tubules. Lipid soluble drugs are more likely to reabsorb from the renal tubules.

740. Which of the following hormones is secreted by the posterior pituitary gland?

- a. Prolactin
- b. Follicle stimulating hormone
- c. Vasopressin
- d. Luteinizing hormone

740. (c) Vasopressin (ADH) and oxytocin are secreted by the posterior pituitary gland. Vasopressin stimulates water resorption in the kidney, where as oxytocin stimulates the contraction of uterus muscles during birth.

783. Which of the following hormone is secreted by the kidney in response to a reduction in the amount of oxygen that reaches tissues?

- a. Calcitonin
- b. Erythropoietin
- c. Insulin
- d. Melatonin

783. (b) Erythropoietin is secreted by the kidney in response to a reduction in the amount of oxygen that reaches tissues. It increases the rate of production of RBC by the process of erythropoiesis. The production of red blood cells normally occurs in the blood forming tissues of bone marrow.

794. Which of the following is NOT TRUE about histamine?

- a. It increases the contraction of smooth muscles.
- b. It decreases force of contraction and rate of heart.
- c. It stimulates gastric acid secretion.
- d. It is released in large amounts after skin damage.

794. (b) Histamine is a compound derived from amino acid Histidine. It is normally associated with mast cells. It causes contraction of smooth muscles and dilation of blood vessels. It increases the force of contraction and rate of the heart. It also stimulates gastric acid, and salivary and pancreatic secretions. It is released in large amounts after skin damage.

803. The deficiency of which of the following may increase the chances of bleeding?

- a. Red blood cells
- b. White blood cells
- c. T-lymphocytes
- d. Thrombocytes

803. (d) Platelets (Thrombocytes) are disk-shaped cells, 1 to 2 micrometers in diameter. They are present in the blood. Their major function is to clot the blood. The deficiency of these cells may

result in bleeding. The normal count of these cells in blood is 150,000 to 400,000 mm³.

808. Which of the following may be damaged in Multiple sclerosis?

- a. Nephron
- b. Myelin sheath
- c. Parietal cells
- d. Bowman capsule

808. (b) Multiple sclerosis is a chronic disease of the nervous system affecting young and middle age adults. The myelin sheath surrounding nerves in the brain and spinal cord are damaged. The disease affects different parts of the brain and spinal cord resulting in typically scattered symptoms. These include ataxia, nystagmus, dysarthria, and optic neuritis.

815. Which of the following glands secretes Melatonin?

- a. Pituitary
- b. Thyroid
- c. Pineal
- d. Pancreas

815. (c) The pineal gland is a pea-sized gland located at the posterior wall of the third ventricle of the brain, deep between the cerebral hemispheres at the back of the skull. It mainly secretes Melatonin. It is the hormone that regulates day/night cycle.

819. Ketonuria is normally found in patients with/after:

- I. Diabetes mellitus
 - II. Severe vomiting
 - III. Starvation
-
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

819. (d) The presence of ketone bodies in urine is defined as ketonuria or acetonuria. It is normally seen in patients with diabetes mellitus. It is also reported in patients after prolonged starvation or severe vomiting. Ketone bodies may be detected by adding a few drops of 5% sodium nitropruside solution and ammonia solution to the urine; the gradual development of a purplish red color indicates their presence.

822. Meniere's disease is characterized by:

- I. Episodes of deafness
 - II. Vertigo
 - III. Buzzing in the ears
-
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

822. (d) Meniere's disease is a disease of the inner ear characterized by episodes of deafness, vertigo and buzzing in the ears. It is thought to be caused by the build-up of fluid in the inner ear. Prochlorperazine reduces vertigo in acute attacks and Gentamicin is injected into the middle ear to reduce activity in the inner ear.

823. A deficiency of which of the following may lead to goiter?

- a. Magnesium
- b. Aluminum
- c. Iodine
- d. Fluorine

823. (c) Iodine is an element that is required in small amounts for healthy growth and development. An adult requires about 30 mg of iodine, mostly concentrated in the thyroid gland to synthesize thyroid hormones. The deficiency of iodine may lead to goiter. The daily requirement of iodine in an adult is 150 mcg per day. Seafood, vegetables, and iodized salts are dietary sources of iodine.

826. Which of the following is NOT TRUE about anorexia nervosa?

- a. It is a genetic disease characterized by severe weight loss.
- b. It is commonly reported in adult females.
- c. There is an excessive use of laxative or emetic agents.
- d. Fluoxetine is indicated for the treatment.

826. (a) Anorexia nervosa is a psychological illness, most common in female adolescents, in which the patients starve themselves or use other technique, such as vomiting or taking laxatives to induce weight loss. Severe weight loss, amenorrhea, and even death may result. Psychotropic therapy such as Fluoxetine may be required to treat the disease.

834. A female with her three-year old child comes to the front counter of the pharmacy and asks for any nausea preventing medicine for her son. She says that her son has suffered from nausea and vomiting for the past three days. The pharmacist may recommend:

- a. Emetrol for controlling nausea and vomiting for three to four times day.
- b. To admit her son immediately to the hospital.
- c. Plenty of fluid.
- d. Over the counter Meclizine.

834. (b) Since the child has suffered from nausea and vomiting for the past few days, it is advisable to admit him immediately to the hospital to prevent further complications.

835. A malignant disease in which the bone marrow may produce excessive amounts of leukocytes is known as:

- a. Polycythemia vera
- b. Thrombocytopenia

- c. Anemia
- d. Leukemia

835. (d) A malignant disease in which the bone marrow may produce excessive amounts of leukocytes is known as leukemia. The overproduction of leukocytes which are immature or abnormal forms may suppress the production of normal white blood cells, red blood cells, and platelets. This may lead to neutropenia, anemia, and severe bleeding.

840. Night blindness is reported due to dietary deficiency of:

- a. Vitamin C
- b. Vitamin A
- c. Vitamin D
- d. Vitamin E

840. (b) Night blindness is reported due to dietary deficiency of vitamin A. It is defined as the inability to see in dim light or at night. It is due to a disorder of the cells in the retina that are responsible for vision in dim light, and the result of a deficiency of vitamin A. If the vitamin deficiency continues, it may progress to xerophthalmia and keratomalacia.

841. The process by which the hypothalamus stimulates the pituitary to release particular hormones in response to a decrease of the hormone in blood is defined as:

- a. Positive Feed-Back Mechanism
- b. Negative Feed-Back Mechanism
- c. Releasing Factor Stimulation
- d. Factor Specific Hormone Stimulation

841. (a) Any fall of a particular hormone (e.g. thyroid) in the blood stimulates the hypothalamus to secrete particular hormone-releasing factor (Thyroid Releasing Factor-TRF). The releasing factor then stimulates the pituitary gland to increase secretion of the particular hormone (Thyroid Stimulating Hormone-TSH). This process of stimulating particular endocrine glands in response to a decrease in the hormone level is known as Positive Feed-Back Mechanism.

843. Which of the following is NOT a pharmacological action of Thyroid hormones?

- a. It increases oxygen uptake, BMR, and calorie production.
- b. It stimulates carbohydrate and protein metabolism.
- c. It reduces serum concentrations of calcium by depositing blood calcium into bone.
- d. It increases heart rate.

843. (c) Thyroid hormone has the following pharmacological actions: It increases oxygen uptake, BMR and calories production. It stimulates carbohydrate and protein metabolism and growth. It increases heart rate, and therefore palpitation and tachycardia are signs of hyperthyroidism. However, it increases serum calcium concentrations by mobilizing calcium from bones into the blood.

849. Which of the following is NOT a pharmacological action of insulin?

- a. It increases utilization and oxidation of sugar in the tissues.
- b. It stimulates transports of glucose into cells.
- c. It stimulates breakdown of glycogen in muscles and the liver.
- d. It stimulates protein synthesis and growth.

849. (c) It increases utilization and oxidation of sugar in the tissues. It stimulates transport of glucose into cells. It increases synthesis of glycogen in muscles and the liver. It stimulates protein synthesis and growth. It also reduces breakdown of glycogen into glucose and serum glucose levels.

851. All of the following factors stimulate insulin secretion EXCEPT:

- a. Glucose
- b. Growth hormone
- c. Glucagon
- d. Starvation

851.(d) Starvation may inhibit the secretion of insulin to prevent hypoglycemia. The other all choices may stimulate the secretion of insulin from the pancreas.

852. Digitalis glycoside increases:

- a. Influx of calcium
- b. Influx of potassium
- c. Efflux of sodium
- d. Influx of sodium

852. (d) In normal resting cardiac muscles, the membrane is positive outside with respect to inside. This is because of a large concentration of sodium ions that lie outside the membrane. The large concentration of sodium ions outside is due to an enzyme $\text{Na}^+\text{K}^+\text{ATPase}$ pump. As the membrane is excited, the permeability of the membrane is changed and as a result there is an influx of sodium ions and an efflux of potassium ions. The influx of sodium ions increases intracellular calcium levels which increases the contraction of muscles. Digitalis inhibits the $\text{Na}^+\text{K}^+\text{ATPase}$ pump, which increases the influx of sodium ions and intracellular calcium levels. This may increase the force of contractions of the heart in CHF patients.

854. Calcium channel blockers are indicated for the treatment of angina because:

- I. They decrease in myocardial contractility.
 - II. They reduce oxygen consumption of the heart.
 - III. They reduce coronary blood flow by constricting coronary blood vessels.
- a. I only
 - b. I and II only
 - c. II and III only
 - d. All

854. (b) Calcium channel blockers are indicated for the treatment of angina because they decrease in myocardial contractility. They reduce the oxygen consumption of the heart. They increase coronary blood flow by producing dilation of coronary blood vessels. They also reduce pre-load in the heart.

857. Which of the following is NOT a side effect of vasodilators?

- a. Hypotension
- b. Tachycardia
- c. Edema
- d. Weight loss

857. (d) Weight loss is not a side effect of vasodilators. Most vasodilators are associated with hypotension, tachycardia, palpitation, edema, weight gain, and facial flushing. They lower blood pressure in normal and hypertensive subjects. They are indicated for the treatment of hypertension.

997. Which of the following is the major cholesterol-carrying lipoprotein in human plasma?

- a. LDL
- b. VLDL
- c. HDL
- d. Chylomicron

997. (a) LDL (Low Density Lipoproteins) is the major cholesterol carrying lipoprotein in human plasma. It is derived from catabolism of VLDL. This process normally occurs in blood vessels. LDL is converted into cholesterol by the enzyme HMG COA reductase. This is the rate limiting step in synthesis of cholesterol. LDL is involved in the transport of cholesterol to peripheral tissues and is potentially atherogenic, whereas HDL is involved in the transport of cholesterol from the periphery to the liver and is antiatherosclerosis.

860. Which of the following is NOT present in lymph fluid?

- a. Lymphocytes
- b. Urea
- c. Platelets
- d. Creatine

860. (c) Lymph fluid is a thin, watery, clear, modified tissue fluid formed by the passage of substance from the blood capillaries into the tissue spaces. It flows in a closed system of vessels, sinuses, and capillaries; it is called a lymphatic system.

Lymph fluid normally consists of a large number of leukocytes, mainly lymphocytes. It also contains water, protein, fats, carbohydrates, urea, creatine, and nonprotein nitrogenous substances. RBC and platelets are not present in lymphatic fluid.

862. The principal function of the lymph node is to:

- a. Provide nutrients to cells.
- b. Remove waste material from cells.
- c. Protect cells against microbes and foreign particles.
- d. Synthesize RBC.

862. (c) The principal function of the lymph node is to protect cells against microbes and foreign bodies. They form the first line of defense. They screen the lymph and thus filter and prevent microbes, toxins, and foreign bodies from spreading. The spread of cancer cells is usually prevented by lymphatic glands. They also give birth to lymphocytes.

868. When a subject changes the posture from the lying down position to the upright, there is a reflex hypotension called:

- a. Systematic hypotension
- b. Asymptomatic hypotension
- c. Postural hypotension
- d. Aortic hypotension

868. (c) When a subject changes the posture from the lying down position to the upright, there is a reflex rise in blood pressure compensate

a momentary hypotension, however many times in patients taking adrenergic blockers, this hypotension remains for a sustained time after changing posture. It is called postural hypotension.

874. The principal function of bile salt is to:

- a. metabolite carbohydrates.
- b. emulsify fats.
- c. inhibit gastric acid secretion and motility.
- d. provide alkaline pH.

874. (b) The principal function of bile salt is to emulsify fats and increase its surface area so that pancreatic lipase can easily convert fats into triglyceride and glycerol.

885. Which of the following is NOT a neurotransmitter?

- a. Epinephrine
- b. Histamine
- c. Dopamine
- d. MAO

885.(d) The transmitting substance, a chemical, that causes the impulses to transfer from one axon to another is known as a neurotransmitter. There are five principal neurotransmitters in the brain. They account for various functions and the deficiency of particular neurotransmitters may cause specific disorders.

<u>Neurotransmitter</u>	<u>Disorder</u>
Serotonin (deficiency)	Depression
Dopamine (deficiency)	Parkinsonism
Dopamine (excess)	Schizophrenia
Acetylcholine (deficiency)	M. gravies
Histamine (excess)	Ulcer and allergic reactions
Epinephrine (excess)	Adrenal medulla cancer
Epinephrine (deficiency)	Depression

899. The disorder of the eye in which the person can see near objects perfectly but finds it difficulty to see distance is defined as:

- a. Myopia
- b. Hypermetropia
- c. Astigmatism
- d. Photomyopia

899. (a) The disorder of the eye in which the person can see near objects perfectly but finds difficulty to see the distance is defined as myopia. Myopic people are short-sighted. The person should wear biconcave lenses (-ve lenses) to correct this.

Hypermetropic people are long-sighted. They can see distant objects well but experience difficulty in seeing near objects. This can be corrected by wearing convex lenses (+ve lenses).

906. Which of the following is NOT a pharmacological action of adrenaline?

- a. It relaxes bronchial smooth muscles.
- b. In reduces the force of contraction of the heart.
- c. It converts glycogen into glucose in the liver.
- d. It increases the coagulation process.

906. (b) Adrenaline is the principal secretion of the medulla of the suprarenal gland. It produces a number of pharmacological actions on the body.

- 1. It increases the force of contraction and rate of the heart.
- 2. It relaxes bronchial smooth muscles.
- 3. It converts glycogen into glucose in the liver.
- 4. It also increases the coagulation process.

910. During starvation, which of the following maintain(s) the blood glucose level?

- I. Glucagon
- II. Growth hormone
- III. cAMP

- a. I only
- b. I and II only
- c. II and III only
- d. All

910 (b) During starvation, glucagon and growth hormone maintain the blood glucose level. The main stimulus for the secretion of glucagon is a fall in blood glucose levels. The rise in blood glucose inhibits the secretion of glycogen.

912. Which of the following is NOT a pharmacological action of Glucagon?

- a. It stimulates the process of glycogenolysis.
- b. It stimulates the process of gluconeogenesis.
- c. It inhibits the deamination of amino acids.
- d. It activates adenylate cyclase to form cAMP.

912. (c) Glucagon is a polypeptide secreted by the pancreas. It raises blood glucose by accelerating breakdown of glycogen into glucose (glycogenolysis), stimulating the formation of glucose from non-carbohydrate sources. It also stimulates the deamination of amino acids and production of cAMP from adenylate cyclase.

927. Which of the following substances can the brain utilize for energy production?

- a. Fat
- b. Glucose
- c. Fatty acids
- d. Amino acids

927. (b) Glucose is the only substance that the brain can utilize for the production of energy.

936. How many sperm is/are produced from primary spermatocyte?

- a. One
- b. Two
- c. Three
- d. Four

936. (d) Spermatogenesis starts at puberty under the influence of gonadotrophins secreted from the anterior pituitary gland.

The primary spermatocyte undergoes first meiotic division to form two secondary spermatocytes. The total diploid number of chromosomes (46) of primary spermatocyte are reduced to half (23) by the first meiotic division. Therefore, each secondary spermatocyte contains only 23 chromosomes. They undergo a second maturation meiotic division. This is similar to mitotic division and the number of chromosomes remains the same. After finishing secondary meiotic division, each secondary spermatocyte produces two spermatids. This may produce a total of four spermatids from two secondary spermatocytes. These four spermatids may convert into sperm after maturation.

955. Poliomyelitis is classified as a:

- a. Bacterial disease
- b. Viral disease
- c. Fungal disease
- d. Protozoal disease

955. (b) Poliomyelitis is an infectious virus disease caused by poliovirus. It affects the CNS. The virus is excreted in the feces of an infected person and disease is the most common where sanitation is poor. Symptoms are normally reported 7 to 12 days after infection.

958. Which of the following is/are signs and symptoms of ketoacidosis?

- I Acetone order of breath
- II Coma
- III Extreme thirst

- a. I only
- b. I and II only
- c. II and III only
- d. All

958. (d) Ketoacidosis is a life-threatening condition in which an increase ketones is present in tissues and body fluids. Nausea, vomiting,

abdominal tenderness, confusion, coma, extreme thirst, weight loss, and acetone odor of breath are symptoms.

959. Which of the following is/are causative agents for meningitis?

- I Neisseria meningitis
- II Hemophilus influenza
- III Klebseria pneumonia

- a I only
- b I and II only
- c II and III only
- d All

959. (b) Meningitis is defined as inflammation of the meninges due to infection by virus or bacteria. Neisseria meningitis and Hemophilus influenza are the most causative agents for meningitis.

Signs and symptoms of Meningitis:

- * Intense headache
- * Fever
- * Loss of appetite
- * Intolerant to light and sound
- * Rigidity of muscle
- * Vomiting
- * Convulsion
- * Delirium

977. If PK_a of a weak base is 9, what would be the PK_b ?

- a. 9
- b. 14
- c. 5
- d. 1

977. (c) $PK_w = PK_a + PK_b$ ($PK_w = 14$)

$$14 = PK_a + PK_b$$
$$PK_b = 14 - 9 = 5$$

996. What is the ratio of unionized species to ionized species of a weak base if the pH of the solution is 10 and PK_a is 8.

- a. 1:100
- b. 100:1
- c. 1000:100
- d. 10:100

996.(b) $PH = PK_w - PK_b + \log \text{base/salt}$

$$PH = PK_a + \log \text{base/salt} \quad (PK_a = PK_w - PK_b)$$

$$10 = 8 + \log \text{base/salt}$$

$$\log \text{base/salt} = 2 \text{ and therefore,}$$

$$\text{base/salt} = 100 : 1.$$

994. The CFTR protein is responsible for:

- a. Transfer of amino acids
- b. Transfer of glucose
- c. Transfer of potassium ions
- d. Transfer of chloride ions

994. (d) Cystic fibrosis is an autosomal recessive disorder in which defective CFTR proteins are found. The CFTR facilitates the transport of chloride ions across the membrane of epithelial lined cells. The altered chloride transport results in altered sodium and water distribution, causing thickened epithelial secretions and mucus. This will lead to pulmonary, gastrointestinal, pancreatic, and hepatic manifestations.

999. With glycogen storage disease, which of the following enzymes is absent?

- a. Azo reductase
- b. Alanine transferase
- c. Myophosphorylase
- d. Predeoxycarboxylase

999. (c) Glycogen storage disease is also known as McArdle's disease. It is an inborn error of the metabolism in which a deficiency of the enzyme Myophosphorylase is found. It prevents the breakdown of glycogen to lactate in exercising muscles. This results in fatigue, pain, and cramps in exercising muscles.